

**WHAT IS CLAIMED IS:**

1. A distributed control system, comprising:

system components having respective memories to store component-specific data that include spatial coordinates of respective positions of the

5 system components;

a configuration unit having an input device for at least one of inputting and generating a layout plan that includes at least information on the respective positions of the system components within the distributed control system; and

10 a communications channel, to which the system components and the configuration unit are connected to mutually exchange data;

wherein the system components are configured to transmit the respective positions as the component-specific data to the configuration unit; and

wherein the configuration unit is configured to assign and transmit unique  
15 physical addresses on the communications channel to the system components whose respective positions were previously received by the configuration unit as the component-specific data.

2. The distributed control system of claim 1, wherein the distributed

20 control system is configured for implementation in an automation system.

3. The distributed control system of claim 1, wherein the system components are selected from the group consisting of controllers, actual value sensors, and actuators.

5 4. The distributed control system of claim 1, wherein at least one of the system components comprises a device for automatically determining the position of the at least one of the system components.

10 5. The distributed control system of claim 4, wherein the device comprises a GPS receiver.

15 6. The distributed control system of claim 1, wherein at least one the system components has a device for entering the position of the at least one of the components.

7. The distributed control system of claim 1, wherein the configuration unit comprises a generator of the layout plan, wherein the layout plan includes, in form of a piping and installation diagram, information on the respective positions of the system components.

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8. A system component for a distributed control system, the system component comprising:

a memory to store component-specific data representing spatial coordinates of a position of the system component; and

5 a communications device connected to a communications channel; wherein the system component is configured to transmit the position of the system component, as the component-specific data, to the communications device via the communications channel; and wherein the system component is configured to receive a unique physical  
10 address assigned by the configuration unit via the communications channel.

9. The system component of claim 8, wherein the system component is selected from the group consisting of controllers, actual value sensors, and  
15 actuators.

10. A method, comprising:

determining positions of respective system components of a distributed control system;

20 storing the positions in respective memories of the system components;

transmitting the positions to a configuration unit of the distributed control system;

generating a layout plan of the distributed control system, wherein the layout plan includes at least information on the respective positions of

5 the system components within the distributed control system; and

assigning and transmitting unique physical addresses on the communications channel to the system components.

11. The method of claim 10, wherein the positions of the respective  
10 system components are automatically determined.